

What is claimed is:

1. A catalyst for purifying an exhaust gas, comprising:
zirconia particles; and
a transition metal layer covering at least a part of a surface
of said zirconia particles in a lamellar manner.
2. The catalyst according to claim 1, wherein said zirconia
particles are heat-resistant zirconia particles.
3. The catalyst according to claim 2, wherein said transition
metal layer is formed by loading a salt of a transition metal on
said heat-resistant zirconia particles and thereafter calcining it
at 800 °C or more in an inert gas atmosphere or an oxidizing gas
atmosphere.
4. The catalyst according to claim 2, wherein at least one member
selected from the group consisting of neodymium and cerium is added
in an amount of from 1 to 80 atomic % with respect to zirconium in
said heat-resistant zirconia particles, and at least a part of an
oxide, being composed of at least one member selected from the group
consisting of neodymium and cerium, forms a solid solution or a
composite oxide with zirconia therein.
5. The catalyst according to claim 1, wherein said transition
metal layer includes at least one metallic element selected from
the group consisting of iron, nickel, cobalt and copper.

6. The catalyst according to claim 1 being further loaded with a noble metal.

7. The catalyst according to claim 1, wherein said transition metal layer covers the surface of said zirconia particles by a rate of from 10 to 80%.

8. The catalyst according to claim 1, wherein said transition metal layer is formed in an amount of from 2 to 10 parts by weight with respect to 100 parts by weight of said resistant zirconia particles.

9. The catalyst according to claim 6, wherein said noble metal is at least one member selected from the group consisting of platinum, palladium, rhodium, ruthenium and iridium.

10. The catalyst according to claim 6, wherein said noble metal is loaded in an amount of from 0.01 to 20 g with respect to 100 g of said catalyst.

11. A catalyst for purifying an exhaust gas, comprising:

a co-catalyst powder including zirconia particles, and a transition metal layer covering at least a part of a surface of the zirconia particles in a lamellar manner; and

at least one member selected from the group consisting of a titania powder and a zeolite powder.

12. The catalyst according to claim 11, wherein said zirconia

particles are heat-resistant zirconia particles.

13. The catalyst according to claim 11, wherein said transition metal layer is formed by loading a salt of a transition metal on said heat-resistant zirconia particles and thereafter calcining it at 800 °C or more in an inert gas atmosphere or an oxidizing gas atmosphere.

14. The catalyst according to claim 12, wherein, in said heat-resistant zirconia particles, at least one member selected from the group consisting of neodymium and cerium is added in an amount of from 1 to 80 atomic % with respect to zirconium, and at least a part of an oxide, being composed of at least one member selected from the group consisting of neodymium and cerium, forms a solid solution or a composite oxide with zirconia.

15. The catalyst according to claim 11, wherein said transition metal layer includes at least one metallic element selected from the group consisting of iron, nickel, cobalt and copper.

16. The catalyst according to claim 11 being further loaded with a noble metal.

17. The catalyst according to claim 11, wherein said titania powder exhibits a BET specific surface area of 50 m²/g or more.

18. The catalyst according to claim 11 comprising said titania powder in an amount of from 20 to 70% by weight with respect to the

entire catalyst.

19. The catalyst according to claim 11, wherein said zeolite powder is composed of at least one member selected from the group consisting of mordenite, ZSM-5, USY, ferrierite and zeolite beta

20. The catalyst according to claim 11 comprising said zeolite powder in an amount of from 10 to 30% by weight with respect to the entire catalyst.

21. The catalyst according to claim 12, wherein said transition metal layer covers the surface of the heat-resistant zirconia particles by a rate of from 10 to 80%.

22. The catalyst according to claim 12, wherein said transition metal layer is formed in an amount of from 2 to 10 parts by weight with respect to 100 parts by weight of the heat-resistant zirconia particles.

23. The catalyst according to claim 11 comprising said co-catalyst powder in an amount of from 50 to 80% by weight with respect to the entire catalyst.

24. The catalyst according to claim 16, wherein said noble metal is at least one member selected from the group consisting of platinum, palladium, rhodium, ruthenium and iridium.

25. The catalyst according to claim 16, wherein said noble metal

is loaded in an amount of from 0.01 to 20 g with respect to 100 g of the catalyst.

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